

# Relationship between Attitude and Adherence Hand Hygiene Practices among Nurses in Patient District Hospital of Semarang

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DOI: [10.36348/sjnhc.2022.v05i04.001](https://doi.org/10.36348/sjnhc.2022.v05i04.001)

| Received: 08.03.2022 | Accepted: 11.04.2022 | Published: 15.04.2022

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## Abstract

**Introduction:** Nurses has responsibility in prevention and control of infection in hospitals. Hand hygiene practices, a way to prevent of infection in hospital, but so many factors can influence adherence of hand hygiene practices. Attitude may influence of adherence of hand hygiene practices. **Aim:** Aim of study was to measure of attitude and hand hygiene behavior among of the nurses. **Methods:** This study used an observational analytic with study of cross-sectional method. Aim research were to study of relationship between attitude and adherence hand hygiene practice among nurses In-patient Unit District Hospital Semarang. Number of samples were 107 nurses on duty at In-patient Unit of the District Hospital Semarang. The data collected by filling a questionnaire of attitude and observation of hand hygiene practices. The data of demography, level of attitude and level of adherence hand hygiene described by distribution of frequencies analysis, and Spearman Rank Test used to analyze a relationship between attitude and adherence of hand hygiene practice. **Results:** Attitude of nurses to hand hygiene showed 75,7% positive, and compliance level to hand hygiene practice were showed 63,6%. Relationship analysis between attitude and adherence of hand hygiene practice among nurses done by correlate analyzed with Spearman Rank Test. The results of bivariate analysis  $r^2$  0.269 indicated correlated between attitude and adherence hand hygiene, probability result  $p=0.005$  ( $<0,05$ ) indicated significant relationship between attitudes and adherence of hand hygiene practice among nurses acquired by Spearman Rank Test. **Discussion:** Attitude may influence adherence of the hand hygiene practice among nurses. Confirmed analysis that good attitude, may increase of adherence of hand hygiene practices. To improving adherence hand hygiene, not only influence by attitude, also influence by rule and procedure and must be same perception about importantly of hand hygiene practice can be prevented of cross infection in hospital.

**Keywords:** Attitudes, adherence, hand hygiene, nurses.

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## INTRODUCTION

Method of Infection control with using a-septic for hand hygiene on baby delivery been discovered since 1818 up to 1886 by Dr Ignaz Semmelweis at the England, from this study concluded that hand hygiene practices could prevented of cross contamination from the patient to health care worker as described by Carter KC., (1981) on the journal medical history.

According to Siegel *et al.*, (2007), hand of health care worker can be transferred micro-bacteria after contacted the patient infection if does not do hand hygiene. Only 59% case of nurses did it, but other

nurses did not do due work overload, and does not understand what the benefit of hand hygiene (Trunell and White, 2005; Shinde and Mohite, 2015; Beggs *et al.*, 2008). Emmerson *et al.*, (1996) classified the nosocomial infection in hospital following by: (1) Urinary Tracts Infection 23%; (2) Upper Respiratory Tracts Infection 23%; (3) post operation infection 11%; (4) skin infection 10%; (5) infection of blood stream circulation 6%; (6) others infection 27%. Urinary Tracts Infection related to inserted of urine catheter and Upper Respiratory Tracts Infection related to exposed by air borne infected, post op infection skin infection and blood circulation infection related to exposure by bacteria founded growth in the hospital.

Study reported by Labrague *et al.*, (2012) discovered that hand hygiene was fourth option to be implemented as the general precautions by nurses, first option was using mask. Hand hygiene is basically simple action for prevention and control of nosocomial infection in the hospital. Incidence of *Phlebitis* at District Hospital of Semarang were 53 out of 47641 patients with infusion, incidence rate was increased become 55 every 6 months on 2013 (Purilinawati *et al.*, 2013). 2014 the incidence nosocomial infection at the District Hospital of Semarang were 0.084% due Urinary Tracts Infection due inserted urine catheters; 0,016% pneumonia; 1.69% sepsis; 0.12% phlebitis and infected due blood transfusion were 1,02% (Putri H. R., 2014). Figure out of hand hygiene practice at General Hospital of Semarang 2011 is less practiced showed 42.3%, good practiced 34.6% and average level of hand hygiene practice only 23.1% among the nurses (Wiguna R. A., 2011).

Raised issue while preliminary survey at the in-patient District General Hospital of Semarang, there were 207 nurses distributed at the 13 wards. According to the head nurses, hand hygiene practice always warned verbally at the beginning shift to the nurses have to do hand hygiene before doing nursing intervention, after and leaving the ward patient. Encouraged of hand hygiene practice been done by management of District Hospital of Semarang such as provided of hand hygiene facility, media information, training and champagne but still founded some nurses not following this hospital policy. The study of behavior and adherence of hand hygiene is needed to explore, for look up how far the improving the quality of hand hygiene practice among the nurse's influence by attitude. Aim of this study was to analyze relationship between behavior and adherence hand hygiene practices among nurses at in patient District hospital of Semarang.

## METODE

This study used of the analytic observational within the cross-sectional approach. Two objects being study was the attitude and adherence hand hygiene practices among the nurses at the in-patient District Hospital of Semarang. Number Sample was 107 nurses, with the criteria inclusive were the nurses working as staff nurses in patient District Hospital of Semarang. Tool of collection data, we are using the two tools: (1) Questionnaire of the Demography data and hand hygiene attitude, 2) Observation form for of Hand hygiene practice. Demography data responder are obtaining of the age, sex, level education and work experience (Colton and Covert., 2007). Questionnaire hand hygiene attitude were the statement of hand hygiene to be answer of agreeing level by responder,

there were four options to be answer (Trunnell, E.P. & White JR, G.L., 2005). Observation form of Hand hygiene practice to be observed by observer which one checklist had been followed by the nurses (Wiguna R. A., 2011). Study process been conducted from May 18 up to May 21, 2015. Upon data collected, we analyzed with the descriptive analysis and bivariate analyzed (spearman rank test).

## RESULT AND DISCUSSION

### A. General picture of the Hospital

District Hospital of Semarang is medical facility as public services unit for the community at the District Semarang. This hospital established since 1990 following ordered from the City Council Order No. 3 years of 2006; and Major City Order no. 16, years of. Scope services District Hospital of Semarang must follow the vision and mission detailed are: (1) Vision: District Hospital of Semarang had professional hospital services, independents and highly competitive. (2) Mission: to achieve the vision of District Hospital of Semarang. District Hospital of Semarang will be provided medical care. as following: (1) as par as the delegation duty of care the Major District Semarang to the public services in medical care, and (2) this hospital administered and managed by a director appointed by the Major District of Semarang.

### B. Characteristics of Responder

Table 1 showed number responder were 107 nurses, majority sex type was female 68%, majority marital status was single status 64.5%. Most of level education were diploma nursing 73.8%. Most of them young nurses, single status with diploma educated.

**Table 1: Distribution and frequency Demography of the nurses at the in-patient District Hospital of Semarang (n=107)**

Variable	Category	Freq	%
Sex	Female	73	68.2
	Male	34	31.8
Married status	Married	38	35.5
	Single	68	64.5
Education level	Diploma	79	73.8
	Bachelor	28	26.2

Table 2 showed lowest age of nurses was 19 years old, and highest age of nurses was 48 years old, average ages the nurse was 28.81 years old. Majority group age was 19-29 years old. Most of them were young nurses.

Table 3 showed a majority work experience of the nurses were 1-5 years as nurses, less experience as nurses.

**Table 2: Distribution of frequency of age the nurses at the in-patient District Hospital of Semarang (n=107)**

Age	Freq	%	Min-Max	Mean	SD
19-29 years	60	56.1	19-48	28.81	6.17
30-39 years	40	37.4			
40-49 years	7	6.5			

**Table 3: Distribution and frequency of work experience of nurses at the in-patient District Hospital of Semarang (n=107)**

Worked experience	Freq	%	Min-Max	Mean	SD
1-5 years	69	64.5	1-22	5.34	5.12
6-10 years	26	24.3			
11-15 years	12	11.2			

### C. Attitude and adherence hand hygiene

Table 4 showed, majority attitude of nurses to hand hygiene practice were positive of the attitude (75.7%). Table 5 showed the adherence level of hand

hygiene among nurses' majority good were 63.6%. Indicated among nurses aware to the infection prevention and control.

**Table 4: Distribution and frequency of attitude of nurses at the in-patient District Hospital of Semarang (n=107)**

Variable Attitude	Freq	%	Min-Max	Mean	SD
Positive	81	75.7	29-39	33.21	3.273
Negative	26	24.3			

**Table 5: Distribution and frequency of adherence of nurses to the hand hygiene practice at the in-patient District Hospital of Semarang (n=107)**

Variable		Freq	%	Min-Max	Mean	SD
Adherence	Good	39	63.6	49-66	61.35	5.833
	Not good	68	36.6			

### D. Correlation Test Result

Illustrated on table 6, Correlation's test with *Spearman Rank* showed  $r^2$  0.269 with probability P-value 0.005 indicated there were significant correlated between attitude and adherence hand hygiene practice among nurses. Probability significant 0.005 ( $\alpha < 0.05$ )

indicated there were significant relationships between attitude and adherence hand hygiene practice among nurses in-patient District Hospital of Semarang. Adherence of the hand hygiene among the nurses influenced by the positive of the attitude.

**Table 6: Correlation test between Attitude and adherence hand hygiene practice among nurses at the in-patient District Hospital of Semarang (n107)**

Variable		Frequency	%	n	Correlation Coefficient	P Value
Attitude hand hygiene	Positive	81	75.7	107	0.269	0.005
	Negative	26	24.3			
Adherence hand hygiene	Good	68	63.6			
	Average	39	36.6			

## E. DISCUSSION

Attitude is an internal of reaction or response to the stimuli. This factor will be influence someone doing something with good if had a positive attitude. If someone had positive attitude, tendency to have interesting to some thing or doing something (Notoatmojo, 2010). Attitude influence by many factors such as work experience, influence by other, culture, mass media and level of education (Azwar S., 2008).

Resulted of this study, nurses at the District Hospital of Semarang showed had positive attitude were 75.7% and negative attitude were 24.3%. This situation influences by sex type of female nurses 68.2%. Female nurses more aware to influence other to do hand

hygiene practice but need to prove it. Level education of nurses also compliance with national standard minimal for nurses were diploma nursing. Diploma nursing more attractive to following nursing procedure rather than bachelor education, due diploma nursing majority competency were practical nursing rather then the theory. Work experience not supporting the nurses doing hand hygiene practice. In this hospital, majority work experience of nurses between 1–5 years.

Ideally *five moment hand hygiene* (WHO, 2010), must be 100% to follow by nurses. Level of adherence hand hygiene among nurses in-patient District Hospital of Semarang after exposed by contamination were 96.3%. Nursing intervention had

risk exposed by secret from the patient, exposed by blood from the patient with injury or while injection patient, exposed by urine while inserted urine catheter, and exposed by blood or pus while cleaning of medical equipment (RCN, 2012). Level adherence hand hygiene before and after nursing intervention was low. Hand hygiene its mandatory before do nursing intervention in hospital can be prevent and control of hospital acquired infected (White, Duncan and Baumle. 2011).

Adherence level to follow procedure of hand hygiene with hand rub (65.4%) is better than by water (64.5%). Nurses likely favor to do hand hygiene with hand rub, event do this method just newly, but its limit to used, after 5 times hand rub hand of nurses become sticky and must be wash with the water. Dirty hand with the soil, could not be cleansing with hand rub, it must wash by water. Hand hygiene by water must be follow in this situation. (Mathur P., 2011).

Level adherence hand hygiene on 2015 been improved among the nurse's in-patient district Hospital of Semarang, showed 63.6% compared study done by Wiguna RA., 2011 showed 34.6%. Level adherence hand hygiene among nurses in-patient District Hospital of Semarang better then studied by Nuryati E., (2011) at ICU dan NICU Bros hospital Tanggerang, showed 60%. Study by Pitet D., (2012) adherence hand hygiene showed 48%. Study by Jamaludin J., Sugeng S., Wahyu L., dan Sondang M., (2012) at ICU showed 48.14% before hand hygiene program and after program just 60.74%.

This study confirmed that the attitude influenced of adherence hand hygiene among nurses. Probability of correlation analysis showed 0.005 ( $\alpha < 0.05$ ) indicated there were relationships between attitude and adherence hand hygiene practices among nurses in-patient District Hospital of Semarang. Event do opposite result from study done by Ningsih E.S., (2012) at ICU and NICU hospital of Dr. H Slamet Martodirjo Pamekasan, showed probability 0.134. Attitude positive contributed to adherences. Attitude theory is complaint to improving hand hygiene practice among the nurses.

## CONCLUSION

Aim of this study is to explore level of attitude nurses to hand hygiene, explore adherence hand hygiene among the nurses and analyze relationships between attitude and adherence hand hygiene practice among nurses at in-patient District Hospital of Semarang. Level of attitude nurses to hand hygiene were 75.7% and Level of adherence nurses to hand hygiene were 63.6%

Confirmed, there were significant relationships between attitude and adherence hand hygiene practice among nurses. Resulted correlation test with Spearman rank showed  $r^2$  0,269 and probability significant 0.005.

## SUGGESTION

**Nursing services:** Theory model TPB (Theory planned behavior) can be implementation while supervise and control nursing practice at the hospital. Hand hygiene may contribute to improving patient safety and patient care. Head nurses must behave skill how to influence the nurses to have positive attitude.

**Nursing research:** This study showed figure out of level of attitude and adherence of hand hygiene practice among nurses. Advised to future study need to analyze relationships other factors to the adherence of hand hygiene practice among nurses.

**Nursing education:** This study raised attention to the nursing student, to have good attitude of hand hygiene practice, may improving the adherence hand hygiene practice at the hospital. Hospital had risk of infection may exposed to the student also during practical nursing.

## DECLARATIONS

### Ethical approval

A subcommittee approved this study of ethics Muhammadiyah University Semarang, and permission from the Semarang District Hospital.

**Funding:** This research is not funding by any source.

### Informed Consent Statement

The participants have been explained the purpose of the study, and the written informed consent was obtained before conducting the interview. Confidentiality was maintained for the participants, and the right to withdraw from the study at any time was explained.

### Data Availability Statement

The data sets used and analyzed in this study are available from the corresponding author.

## ACKNOWLEDGMENTS

The author is very thankful to all the associated personnel in any reference that contributed in/for the purpose of this research.

**Conflicts of Interest:** The author declares no conflict of interest.

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